

# INCONEL® 718

Chemical Composition			Specifications	Key Features	Typical Applications
Element	Min %	Max %	AMS 5662 AMS 5663 AMS 5832 AMS 5962 ASTM B637 GE B5OTF14/15 GE B14H89 ISO 15156-3 (NACE MR 0175)	Good creep rupture strength at high temperatures  Higher strength than Inconel X-750  Better mechanical properties at lower temperatures than Nimonic 90 and Inconel X-750  Age hardenable  ^^High temperature dynamic applications	Gas Turbines Rocket Motors Space Craft Nuclear Reactors Pumps
C	-	0.08			
Mn	-	0.35			
Si	-	0.35			
P	-	0.015			
S	-	0.015			
Cr	17.00	21.00			
Ni	50.00	55.00			
Mo	2.80	3.30			
Nb/Cb	4.75	5.50			
			Designations		
Ti	0.65	1.15	W.Nr. 2.4668 UNS N07718 AWS 013		
Al	0.20	0.80			
Co	-	1.00			
Ta	-	0.05			
B	-	0.006			
Cu	-	0.30			
Pb	-	0.0005			
Bi	-	0.00003			
Se	-	0.0003			
Fe	BAL				

<b>Density</b>	8.19 g/cm <sup>3</sup>	0.296 lb/in <sup>3</sup>
<b>Melting Point</b>	1336 °C	2437 °F
<b>Coefficient of Expansion</b>	13.0 µm/m °C (20 – 100 °C)	7.2 x 10 <sup>-6</sup> in/in °F (70 – 212 °F)
<b>Modulus of Rigidity</b>	77.2 kN/mm <sup>2</sup>	11197 ksi
<b>Modulus of Elasticity</b>	204.9 kN/mm <sup>2</sup>	29719 ksi

Heat Treatment of Finished Parts					
Condition as supplied by Alloy Wire	Type	Temperature		Time (Hr)	Cooling
		°C	°F		
No. 1 Temper or Spring Temper	Anneal	980	1800	1	Air
	Age Harden	720	1330	8	Furnace
	Total Age	620	1150	18	Air
No. 1 Temper or Spring Temper (for ISO 15156-3 / NACE MR 0175)	Anneal	1010	1850	2	Air
	Age Harden	790	1455	6	Air
No. 1 Temper or Spring Temper	Age Harden	720	1330	8	Furnace
	Total Age	620	1150	18	Air

Properties				
Condition	Approx. tensile strength		Approx. operating temperature depending on load^^ and environment	
	N/mm <sup>2</sup>	ksi	°C	°F
Annealed	800 – 1000	116 – 145	-	-
No. 1 Temper	1000 – 1200	145 – 175	-	-
Spring Temper	1250 – 1550	180 – 225	-	-
No. 1 Temper + Annealed + Aged	1250 – 1450	181 – 210	-200 to +550	-330 to +1020
No. 1 Temper + Aged	1520 – 1720	220 – 250	Contact Alloy Wire Technical Dept.	
Spring Temper + Annealed + Aged	1250 – 1450	181 – 210	-200 to +550	-330 to +1020
Spring Temper + Aged	1700 – 1950	247 – 283	Contact Alloy Wire Technical Dept.	

The above tensile strength ranges are typical. If you require different please ask. ^^Dynamic applications = active/lively/changing